UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,721	10/18/2001	Michael Slocombe	0023-US-01	8719

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LEVEL 3 COMMUNICATIONS, LLC
c/o CPA Global
P.O. Box 52050
Minneapolis, MN 55402

EXAMINER
DIVECHA, KAMAL B

ART UNIT	PAPER NUMBER
2451	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,14-17 and 30-46* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,14-17 and 30-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This Action is in response to communication filed 7/7/2010.

Claims 1-7, 9, 14-17, 30-46 are pending in this application.

Claims 8, 10-13 and 18-29 are cancelled in this application.

RE-OPENING PROSECUTION

In view of the APPEAL BRIEF filed on 7/7/2010, PROSECUTION IS HEREBY REOPENED. A New grounds of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/John Follansbee/

Supervisory Patent Examiner, Art Unit 2451

Transfer

This application has been transferred to a different examiner, the current examiner of record, from the previous examiner.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter.   See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).   Correction of the following is required: "Computer-readable medium".

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1.   Claims 1, 14, 30-35, 38-39, 41-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Claim 1 recites "…advertising, by each of the DNS devices, the common address…"

The specification as filed fails to disclose or suggest DNS devices advertising the common address. The specification, at best, discloses advertising by the CDN nodes, e.g. pg. 11 and pg. 9, and CDN nodes comprises DNS server/device and cache server.

The specification does not disclose DNS server advertising the common address. Stated another way, the advertising can be performed by a cache server and/or other entity different than the DNS server in the CDN node.

Claim 14 recites:

> "The method of claim 1...restarting advertising when the load characteristics decreases below the predefined overload metric"

The specification fails to teach and/or disclose restarting advertising when the load characteristics decrease **below the predefined overload metric.** There is no description whatsoever regarding a process of restarting when the load goes below the predefined overload metric.

The specification, at best, discloses restarting advertising when the load decreases, e.g. pg. 11 lines 13-18, but it does not mention the usage of predefined metric and using this predefined metric in order to indicate the restarting process.

Independent claim 30 recites:

> "A system for content delivery in a network comprising:
> a plurality of domain name system (DNS) devices, each of the DNS devices associated with a cache server system;
> wherein the DNS devices are assigned a common address, **and wherein each DNS device advertises the common address within the network**;
> **wherein each DNS device monitors one or more load characteristics of the DNS device's associated cache server system in the network; and**
> wherein each DNS device discontinues advertising of the common address of the DNS device's associated cache server system if the associated cache server system has a load characteristics that exceeds the predefined overload metric".

The specification fails to teach and/or disclose "DNS device advertising the common address" and "DNS device monitoring one or more load characteristics of the DNS device's associated cache server system in the network..."

The specification, at best, discloses the CDN node containing software to monitor the load...e.g. specification, pg. 11 lines 1-6 and fig. 3. The CDN node comprises the DNS and cache server, e.g. fig. 3, and the CDN node advertising the common address.

The specification does not disclose the monitoring software in the DNS server nor DNS server advertising the common address.

Claims 42 and 44 recites:

"The method as in claim 1, wherein advertising, by each of the DNS devices, the common address within the network includes indicating that content is available for retrieval by end user systems from each associated cache server system communicatively connected to the network."

The specification fails to disclose and/or suggest the limitation as in claim 42. At best, the specification discloses advertising the common address, e.g. pg. 7 lines 30-31, pg. 11. The specification does not disclose or suggest the process of indicating that content is available for retrieval by end user systems from each associated cache server system communicatively connected to the network."

As such, the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 31-35, 38-39, 41-46 are rejected for one or more reasons as set forth above.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 38-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims fail to place the invention squarely within one statutory class of invention. Based on the broadest reasonable interpretation of the term "computer readable medium", the term is not limited to non-transitory computer readable storage media, and can include transitory media (See http://www.uspto.gov/patents/law/comments/2009-08-25_interim_101_instructions.pdf). The transitory media generally stores data/information in form of signals. Signals are form of energy. As such, the claim is drawn to a form of energy and/or signal *per se*. Energy is not one of the four categories of invention and therefore this claim(s) is/are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefor not a composition of matter. Signal *per se* does not appear to be a process, machine, manufacture or composition of matter.

> [Claims that recite nothing but the physical characteristics of a form of energy, such as frequency, voltage or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U. S. (15 How.) at 112-14. See also In re Nuijten. Docket no. 2006-1371 (Fed. Cir. Sept. 20, 2007)(slip. Op. at 18): "A propagating signal is not a process, machine, manufacture or composition of matter"]

As such, the claims are deemed non-statutory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness
    or nonobviousness.

3.   Claims 1-7, 14-17 and 30-46 are rejected under **35 U.S.C. 103(a)** as being unpatentable

over McCanne (US 6,785,704 B1) in view of Rochberger et al. (hereinafter Rochberger, US

6,614,757 B1).

As per claim 1, McCanne discloses a method of content delivery in a network,

comprising:

associating each of a plurality of devices in a Domain Name system (DNS) with at least

one cache server system (col. 13 L35-51, col. 17 L8-35);

assigning to the DNS devices a common address (col. 14 L31-54, col. 15 L32-61);

advertising, by each of the DNS devices, the common address within the network (col. 15

L2-14, col. 15 L32 to col. 16 L25);

monitoring one or more load characteristics of one or more of the cache server systems in the network (col. 13 L35-51, col. 17 L8-35); and

determining if one or more of the load characteristics exceeds a predefined overload metric (col. 18 L56 to col. 19 L3, L58-67).

However, McCanne does not explicitly disclose the process of discontinuing advertising of the common address by each DNS device associated with a cache server system determined to have a load characteristics that exceeds the predefined overload metric.

Rochberger discloses the process of **discontinuing advertising of the common address** when a system is determined to have a load characteristics that exceeds the predefined overload metric (col. 9 L60 to col. 10 L31: by setting the parameters in the advertisement to zero corresponding to the link that is overloaded. Note the claim does not say stopping the sending of the BGP advertisements, col. 10 L32-51).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify McCanne in view of Rochberger in order to discontinue advertising the common address by each DNS device associated with a cache server system determined to have a load characteristics that exceeds the predefined overload metric.

One of ordinary skilled in the art would have been motivated because this would have eliminated additional requests that it cannot handle due to its current load (Rochberger: col. 9 L60-67, col. 12 L65-67).

As per claim 2, McCanne-Rochberger discloses the method of claim 1, wherein the common address is an anycast address ((col. 14 L31-54, col. 15 L32-61).

As per claim 3, McCanne-Rochberger discloses the method of claim 1, wherein the advertising act comprises: sending routing information to a plurality of routers in the network in accordance with the Border Gateway Protocol (BGP) ((col. 15 L2-14, col. 15 L32 to col. 16 L25).

As per claim 4, McCanne-Rochberger discloses the method of claim 1, wherein the cache server systems are geographically distributed across the network (col. 9 L40 to col. 10 L8).

As per claim 5, McCanne-Rochberger discloses the method of claim 1, wherein the DNS devices are collocated with the cache server systems with which the DNS devices are associated (col. 14 L31 to col. 15 L61: DNS servers are associated with cache or web servers).

As per claim 6, McCanne-Rochberger discloses the method of claim 1, wherein each cache server system and associated DNS devices are located in a different Internet Service provider Point of Presence (fig. 2, col. 9 L41-67, fig. 7, fig. 12).

As per claim 7, McCanne-Rochberger discloses the method of claim 1, wherein each cache server system and associated DNS device is located at or near an entry point of the network (fig. 2, col. 9 L41-67, fig. 7, fig. 12).

As per claim 14, McCanne-Rochberger discloses the method of claim 1, further comprising after discontinuing advertisement by a DNS device for an associated cache server system having a load characteristics that exceeds the predefined overload metric, restarting advertising when the load characteristics decreases below the predefined overload metric (Rochberger: col. 10 L6-51, col. 12 L15 to col. 13 L50).

As per claim 15, McCanne-Rochberger discloses the method of claim 1, further comprising, if a DNS device discontinues advertisement of it associated cache server system,

continuing to use the cache server system by another system that has already resolved a DNS name to the DNS device, until the DNS name expires (col. 13 L35-51: the redirector node intercepts user requests and redirects it based on the load measurement, col. 14 L31 to col. 15 L43: redirector node is implemented as DNS or on DNS: As such, when the DNS server resolves the name request and redirects the client requests to the edge server based on the load, the edge server would receive the request and process that request at least unless the DNS name expires or the host is taken offline, etc., col. 17 L15-67, col. 19 L30-57: by using TTL values).

As per claim 16, McCanne-Rochberger discloses the method of claim 3, further comprising storing, by each of the routers, multiple routes in association with the common address in a routing table (col. 15 L9-31, fig. 3-4).

As per claim 17, McCanne-Rochberger discloses the method of claim 16, further comprising: receiving a DNS resolution request at one of the routers, wherein the request specifies the common address and requests resolution of a DNS name (col. 11 L66 to col. 12 L39, col. 13 L30-67); selecting a route representing the shortest network distance to one of the DNS devices (col. 15 L9-31: the BGP advertisement includes the shortest path that the router can utilize. Moreover Routers generally employ the best and/or shortest path distance policy); and resolving the DNS name to a unique address of the cache server system associated with the one of the DNS devices (col. 16 L35 to col. 17 L31).

As per claim 42, McCanne-Rochberger discloses the method of claim 1, wherein advertising, by each of the DNS devices, the common address within the network includes indicating that content is available for retrieval by end user systems from each associated cache server system communicatively connected to the network (col. 15 L31-44, col. 15 L2-14, col. 15

L32 to col. 16 L25: when the common address is assigned to the web servers or cache servers, the advertising indicates the content is available for retrieval from these web servers).

As per claim 43, McCanne-Rochberger discloses the method of claim 42, wherein the cache server system comprises a single cache (fig. 6, col. 9 L40-67).

As per claim 47, McCanne-Rochberger discloses the method of claim 30, wherein the cache server system comprises a plurality of cache servers (fig. 6, col. 9 L40-67, col. 12 L21-39: server array).

As per claims 30-41 and 44-45, they do not teach or further define over the limitations in claims 1-7, 14-17 and 42-43. Therefore, claims 30-41 and 44-45 are rejected for the same reasons as set forth in claims 1-7, 14-17 and 42-43.

4.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCanne (US 6,785,704 B1) in view of Rochberger et al. (hereinafter Rochberger, US 6,614,757 B1) and further in view of Goldszmidt et al. (hereinafter Goldszmidt, US 6,195,680 B1).

As per claim 9, McCanne-Rochberger discloses the method of claim 1, wherein at least one of the cache server systems comprises at least two cache servers connected in a cluster (fig. 6, col. 12 L21-39: server array).

However, McCanne-Rochberger does not disclose the process wherein the at least two cache servers are coupled to a switch usable to select from among the at least two cache servers based on a selection policy.

Goldszmidt discloses a switch or router coupled to a server cluster and usable to select from among the cluster nodes based on a selection policy for servicing the clients requests (fig. 1a, fig. 4).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify McCanne-Rochberger in view of Goldszmidt in order to provide a switch coupled to at least two cache servers and usable to select from among the at least two cache servers based on a selection policy.

One of ordinary skilled in the art would have been motivated because it would enabled load balancing between the cluster nodes/servers.

Additional References

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.   McCanne, US 7,734,730 B2: Content Distribution system for operation over an Internetwork including content peering arrangements.

b.   Kompella, US 7,136,374 B1: Transport Networks Supporting Virtual Private Networks and Configuration of such networks: Discloses withdrawing announcement of reachability information.

c.   Bragg, US 7,286,479 B2: Routing for a communication network.

d.   Garcia-Luna-Aceves et al., US 7,343,422 B2: System and method for using uniform resource locators to map application layer content names to network later anycast addresses.

Conclusion

The teachings of the prior art should not be restricted and/or limited to the citations by columns and line numbers, as specified in the rejection. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in its entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

In the case of amendments, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and support, for ascertaining the metes and bounds of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is (571)272-5863. The examiner can normally be reached on IFP (M-F: 10-6.30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN FOLLANSBEE can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KAMAL B DIVECHA/
Primary Examiner, Art Unit 2451